

What is Claimed Is:

- 5N
B₁⁵
1. A photocurable resin composition comprising:
(A) a cationically polymerizable organic compound;
(B) a cationic photopolymerization initiator;
(C) an ethylenically unsaturated monomer;
(D) a radical photopolymerization initiator; and
(E) a polyol.
 - 10 2. The photocurable resin composition according to claim 1, wherein the composition comprises, relative to the total weight of the composition, 20-85 wt% component (A),
15 5-45 wt% component (C), and 5-35 wt% component (E).
 - 20 3. A photocurable resin composition according to any one of claims 1-2, wherein said component (A) comprises at least one compound having two or more alicyclic epoxy groups.
 - 25 4. A photocurable resin composition according to any one of claims 1-3, wherein component (C) comprises at least one polyfunctional ethylenically unsaturated monomer.
 - 30 5. A photocurable resin composition according to any one of claims 1-4, wherein component (E) comprises at least one polyether polyol having 3-6 hydroxyl groups.
 - 35 6. The photocurable resin composition according to claims 1-5, wherein said composition further comprises elastomer particles.

7. The photocurable resin composition according to claim 6, wherein said elastomer particles have an average particle diameter of 10-700 nm.
- 5 8. A photocurable resin composition according to any one of claims 6-7, wherein the elastomer particles include core-shell particles.
- 10 9. A photocurable resin composition according to any one of claims 6-8, wherein the elastomer particles having a base component including polybutadiene, polyisoprene, styrene/butadiene copolymer, styrene/isoprene copolymer, ethylene/propylene copolymer, ethylene/olefin copolymer, ethylene/olefin/polyene copolymer, acrylic rubber, butadiene/(meth)acrylate copolymer, styrene/butadiene block copolymer, or styrene/isoprene block copolymer.
- 15 10. A photocurable resin composition according to any one of claims 6-9, wherein the elastomer particles include at least one core-shell particle having a partially crosslinked core comprising polybutadiene, polyisoprene, styrene/butadiene copolymer, styrene/isoprene copolymer, butadiene/(meth)acrylate copolymer, styrene/butadiene block copolymer, or styrene/isoprene block copolymer; and a shell comprising a methyl methacrylate polymer, methyl methacrylate/glycidyl copolymer, or methacrylate copolymer.
- 20 25 30 35 11. A photocurable resin composition according to any one of claims 1-10, wherein said composition further comprises an epoxy-branched alicyclic compound (G).

12. A photocurable resin composition according to claim 11, wherein said epoxy-branched alicyclic compound (G) comprises at least 2 epoxy-branched alicyclic groups.
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13. A photocurable resin composition according to any one of claims 11-12, wherein said epoxy-branched alicyclic compound (G) comprises an epoxyethyl group.
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14. A photocurable resin composition according to any one of claims 11-13, wherein said epoxy-branched alicyclic compound (G) comprises a residue of an organic compound having a valency of from 1-100.
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15. A photocurable resin composition according to any one of claims 11-14, wherein said epoxy-branched alicyclic compound (G) comprises a residue of an organic compound linked via an oxy group to at least one epoxyalkyl-branched cycloalkyl group.
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16. A photocurable resin composition according to any one of claims 11-15, wherein said epoxy-branched alicyclic compound (G) comprises an epoxyalkyl-branched cycloalkyl group that is hydroxy substituted.
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17. A photocurable resin composition according to any one of claims 11-16, wherein said epoxy-branched alicyclic compound (G) includes a hydroxyepoxyethylcyclohexyl group.
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18. A photocurable resin composition according to any one of claims 11-17, wherein said epoxy-branched alicyclic compound (G) includes a 1-hydroxy-3-(1,2-epoxyethyl)cyclohexyl group.
- 35

S^N
B²

19. A process for photo-fabricating a three-dimensional object comprising:
selectively curing a photo-curable resin according to any one of claims 1-18.

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20. A three-dimensional object formed from a photocurable resin composition according to any one of claims 1-18, or with a process according to claim 19.

